

Weekly Report for 08/11/2014

MCR Operations

Linac Operations

- Received a request from A. Grelick (ASD-RF-STA) to change the timing of the ITS and Laser when in Asynch mode. (Jeff Dooling)
- Because of new 400-W amplifiers, the Asynch function will be modified to be synchronized but independent of Linac timing. (Jeff Dooling)
- Asked Grelick to organize a meeting to discuss the timing change; this task has been assigned to H. Ma (ASD-RF). (Jeff Dooling)

APS Machine Studies

Storage Ring Studies

- SCU0 beam loss study with K. Harkay, recalibrating the ID6 BLMs at a PMT bias of -500 V; all previous measurements have been made with a bias of -614 V on all four channels. (Jeff Dooling)
- Also worked with W. Berg, K. Harkay, and A. Xiao to capture images from the scintillator screen recently installed in ID10. The screen is referred to as the transverse loss monitor (TLM). (Jeff Dooling)
- With a -3 mm bump in ID10, the beam is kicked using IK1 at 8.45 kV. (Jeff Dooling)
- Very bright signals were observed on the TLM screen even down to 0.05 mA of stored charge. (Jeff Dooling)
- Performed orbit switch from RHB to 324. (Aimin Xiao)
- Measured topup signal calibration for 324 and 24 fill. (Aimin Xiao)
- Helped Dooling with ID10 horizontal bump setup. (Aimin Xiao)

ITS Studies

- worked on the operations thermionic RF Gun testing at the ITS. (Yin-e Sun)
- Tuned the ITS beamline optics to get a good beam spot of the gun "Larry" (3rd generation, gun 2) on the YAG screen. (Yin-e Sun)
- Took shifts in the stress test of the RF gun by turning RF on/off every hour, observe and save the gun rf waveforms while maintaining 300mA average current when rf is on. (Yin-e Sun)

APS Machine Research and Development

Storage Ring Research and Development

- Received quote from FiberGuide Industries for SCU1 BL fiber. With assistance from A. Brill (ASD-DIA) placed an order for 4 fibers. Diagnostics Group has agreed to purchase the BL fibers. (Jeff Dooling)
- Attended the SCU weekly meeting in Bldg. 314 and discussed the BL fiber installation. (Jeff Dooling)
- Provided info for ordering optical feedthroughs and couplers to C. Doose (ASD-MD) which the Magnetics Devices group has agreed to purchase. (Jeff Dooling)

Linac Research and Development

- Presented drive-laser status for the PCGun linac installation readiness review on Wednesday. (Jeff Dooling)
- Conducted reflectance and transmission measurements of the pc gun laser injection mirror and window in the laser room. (Jeff Dooling)
- investigated possible scenarios for PC gun operation at APS linac during machine studies and storage ring operations. (Yin-e Sun)
- wrote directions for the magnetic measurements for the pc gun buckign solenoid, and reviewed the measurements. (Yin-e Sun)
- Discussed possible temporary installation configurations for the PC gun at Linac bend line. (Yin-e Sun)

APS Machine Software

AOP Applications Software

- Debugging IBS tracking code. Try to fix the output issues related to the parallel computation. (Aimin Xiao)
- Update touschekLifetime code and user manual. (Aimin Xiao)

Storage Ring

- updated FPGA bpm plane selection config file. (Hairong Shang)
- improved LiberaGDXTTestBench: 1)made the "reset logic" button work as expected 2)added more buttons per HBui's request, such as "Power Cycle Libera", "SFP Status", "GTX Status", "Reset" and "Run" buttons. (Hairong Shang)

Injectors

- modified BRampSwapSync so that it no longer writes message to a text log file to avoid the file being locked up and prevent the script from running, since it does not seem necessary now. (Hairong Shang)
- completely commented out suspend/resume auto ramp correction in booster energy saver application (RampTest) since it is being taken care by auto ramp correction now. (Hairong Shang)
- debugged and fixed the error of SRBPLDVerification because of the non-existent cogging PVs, removed cogging checking. (Hairong Shang)
- changed the functionP value in BBPMHistWaveformSetup from 3 to 1, and changed the yoffset , per CY's request. (Hairong Shang)
- corrected the IRamp reference file in booster IRamp correction, and added filter file to the parameter config file instead of hard-code so that one change the filter as needed. (Hairong Shang)
- changed the IRef file in BIRampWaveformMon to /home/helios/oagData/booster/ramps/IRamp/current-IRamp/IRef instead of the file under BOOSTER directory, which was not well maintained by user BOOSTER. (Hairong Shang)
- tested AFG ramps with 2028 points (was 1024 points before) with CY, the ramp correction worked as expected, but no obvious benefit has been observed so far. (Hairong Shang)

- changed booster ramp correction to use the computed gain and delay for computing lerr instead of AFG gain and trigger delay, tested with CY, however, did not seem to work. (Hairong Shang)

General

- Requested and received installation of ImageJ image processing s/w. ImageJ is the linux version of NIH Image, free image processing s/w from NIH. This will be useful for analyzing images from the TLM mentioned above. (Jeff Dooling)
- added -thickness option to sddsplot usage message. (Hairong Shang)
- replaced oxygen directory by helios in OAG applications so that OAG applications won't be affected by oxygen changes, for example, the oxygen was switched to the new file server last Saturday, this caused failure of some OAG applications. (Hairong Shang)
- debugged and fixed script errors for CY. (Hairong Shang)

Publications, papers and report

- Wrote the PC gun RF conditioning and beam commissioning complete report. (Yin-e Sun)
- Wrote the note on the calculation of the beam incident power on the APS linac gate valves APS_1659467 (Yin-e Sun)
- Drafted tech note on the dispersion measurement at APS/ITS. (Yin-e Sun)
- Wrote a conference paper "Commissioning of the photo-cathode RF gun at APS" for FEL 2014, and prepared the conference poster (THP039 of FEL2014). (Yin-e Sun)
- Worked on FEL paper on FELs based on advanced acceleration as a co-author. (Yin-e Sun)

Meetings, workshops, conferences, committees, LMS related, and reviews

- presented PC Gun system and physics requirements for installation in APS linac readiness review. (Yin-e Sun)
- attended the Dielectric wakefield FEL meeting. (Yin-e Sun)
- Attended the PC gun / Tcav meeting. (Yin-e Sun)
- Attended "possible L3 timing change" meeting. (Yin-e Sun)
- Attended PC gun installation readiness review meeting. (Yin-e Sun)
- attended THz experiment at ITS planning meeting. (Yin-e Sun)
- attended PC gun at linac spectrometer temporary beamline configuration meeting. (Yin-e Sun)

Miscellaneous

- 2 days sick leave (Aimin Xiao)